

Insight into cells could lead to new approach to medicines

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A surprising discovery about the complex make-up of our cells could lead to the development of new types of medicines, a study suggests.

Scientists studying interactions between cell proteins - which enable the [cells](#) in our bodies to function - have shown that proteins communicate not by a series of simple one-to-one communications, but by a [complex network](#) of chemical messages.

The findings suggest that medicines would be more effective if they were designed differently. Drugs could have a greater effect on cell function by targeting groups of proteins working together, rather than individual proteins.

Results were obtained by studying [yeast](#), which has many corresponding proteins in human cells. Researchers, including scientists from the University of Edinburgh, used advanced technology to identify hundreds of different proteins, and then used [statistical analysis](#) to identify the more important links between them, mapping almost 2000 connections in all.

Scientists expected to find simple links between individual proteins but were surprised to find that proteins were inter-connected in a complex web.

Dr Victor Neduva, of the University of Edinburgh, who took part in the study, said: "Our studies have revealed an intricate network of proteins

within cells that is much more complex than we previously thought. This suggests that drugs should be more complex to treat illnesses effectively.

Professor Mike Tyers, who led the study, said: "Medicines could work better if they targeted networks of proteins rather than sole proteins associated with particular illnesses."

The research was published in *Science*.

Provided by University of Edinburgh

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